

Washington Park
ARBORETUM BULLETIN

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Concerning this issue . . .

Berries and fruit—ornamental and for the eating—tumble from the cornucopia of this *Washington Park Arboretum Bulletin*.

The harlequin at heart will enjoy the cover story about *Clerodendrum trichotomum*—the species and the variety *fargesii*. Fall brings startling turquoise berries nodding under a magenta harlequin's hat to those creative enough to find a home for this beautiful tree, as touted by Peter Ray. Stunning dark blue berries and bold foliage also will find a place in your garden after reading Gerald B. Straley's words on *Alangium platanifolium* at the University of British Columbia (UBC)—a variety is on view at the Washington Park Arboretum.

You rarely read about edible fruit here, so savor the luscious tastes of unusual European apple and plum varieties described by Sam Benowitz, who also gives his impressions of the art of British fruit growing.

With *Malus* toward all, enjoy Bob Norton's and Jacky King's definitive article on 20 excellent ornamental and six edible members of the *Malus* (crab apple) species.

Another theme you'll notice on these pages honors horticulture north of the border. In addition to his article on *Alangium*, a book of Vancouver's trees by Dr. Straley is reviewed by Dan Hinkley, following Bill Talley's review of one on Northwest landscaping. Jan Kowalczewski Whitner, whose work was first published in the *Bulletin*, gives us an excerpt about B.C.'s VanDusen Garden from her second book.

Top all of this off with Libbie Soden's timely advice about hazard tree care. In her quarterly feature, Val Easton of the University of Washington's Center for Urban Horticulture reveals what's new in the library of this unique institution.

Finally, see the berries of the bare-branched deciduous holly in Tim Hohn's article. He wraps up the issue by describing the Arboretum's part in the international effort to help Florida's Fairchild Tropical Garden and provides a seasonal rundown of what's new in the Washington Park Arboretum.

Jan Silver, Editor

The Washington Park Arboretum Bulletin

Cover: *Clerodendrum trichotomum* var. *fargesii* can be planted in early fall or early spring. Photo by Peter Ray.

Story on page 2.

CONTENTS

2	Magenta Stars & Peanut Butter— <i>Clerodendrum trichotomum</i> by Peter Ray
4	Hazard Trees in the Home Landscape by Libbie Soden
7	Finding Favorite English Fruit Trees for the Pacific Northwest by Sam Benowitz
10	Crab Apples Revisited by Robert A. Norton & Jacky King
14	Nice Flowers—But What about the Indumentum? by Kelly Dodson
17	<i>Alangium platanifolium</i> —A Little Known Asian Shrub by Gerald B. Straley
20	The Northwest Garden Explorer: Touring the VanDusen Botanical Garden by Jan Kowalczewski Whitner
	Book Reviews
23	<i>Northwest Landscaping</i> reviewed by William E. Talley
24	<i>Trees of Vancouver</i> reviewed by Daniel J. Hinkley
25	Errata
26	New on the Shelves of the Elisabeth C. Miller Library by Valerie Easton
27	In the Washington Park Arboretum by Timothy Hohn

In Bulletin articles, an asterisk () indicates species, including varieties and/or forms, that can be found in the Washington Park Arboretum; a dagger (†) indicates specimens in the public collections of the University of Washington's Center for Urban Horticulture. Limited numbers of plants with an asterisk (*) can be propagated by the Pat Calvert Greenhouse for members of The Arboretum Foundation. The greenhouse, located near the Graham Visitors Center, 2300 Arboretum Drive East, is open from 10-12, Tuesdays.*

Contents photo of *Alangium platanifolium* by June West. Story on page 17.

The Washington Park Arboretum Bulletin is published quarterly, as a bonus of membership in The Arboretum Foundation. The Arboretum Foundation is a non-profit organization that was chartered to further the development of the Washington Park Arboretum, its projects and programs, by means of volunteer service and fundraising. The Washington Park Arboretum is administered through cooperative efforts between the University of Washington, its Center for Urban Horticulture, and the City of Seattle Department of Parks and Recreation. The programs and plant collections are a responsibility of the Center for Urban Horticulture.

The mission of The Arboretum Foundation is to ensure stewardship for the Washington Park Arboretum, a Pacific Northwest treasure, and to provide horticultural leadership for the region. This stewardship requires effective leadership, stable funding, and broad public support.

Articles on gardening and horticulturally related subjects are welcome. Please call the *Bulletin* for guidelines. For permission to reprint any part of the *Arboretum Bulletin*, please contact The Arboretum Foundation for written permission. © 1993 The Arboretum Foundation. ISSN 1046-8749.

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Clerodendrum trichotomum var. *fargesii*

Magenta Stars & Peanut Butter— *Clerodendrum trichotomum*

by Peter Ray

If someone were to come up to you insisting that *the* next plant for that very special place in your garden was one that had leaves that smelled of peanut butter, a flower fragrance reminiscent of my grandmother's handbag, and a fall berry display that could have come from the plastic wares

department at Kmart, you might regard that person as strange.

On the other hand—if you hear about velvety heart-shaped leaves floating on a dramatic, open-branched plant with fragrant late summer clusters of white flowers that turn to delicate gems of turquoise berries set in five-pointed magenta stars—we may have to call the medics for a possible sugar overdose alert.

Regardless of whether you decide to speak of the peanut butter plant or gush over the harlequin glorybower, it is still the self-same **Clerodendrum trichotomum*—sort of. There are two forms that have eked their way into the trade. The one mentioned above with the lush, velvety leaves is the straight species. A specimen can be found at the Washington Park Arboretum west of the Holly Collection in the bed of *Eucryphia*. The other

form is variety *fargesii*, known for its narrower, shinier leaves and an apparently greater tolerance of cold. It resides in the Arboretum's nursery area.

Observations of a variety of specimens following the 1990-91 arctic test series of winter blasts revealed that the species, for the most part, had been cut to the ground; the variety *fargesii*, however, had weathered the blasts with little or no die-back. Although *Hortus Third* lists both forms as suitable for USDA Zone 5, this is closer to the truth with *fargesii* than with the species.

Winter also affords us a view of yet another difference between the forms. Usually at the first sharp frost, all the leaves drop off the plants, revealing two distinctly different colors of bark. *Clerodendrum trichotomum* has thicker branches with a brownish-gray coloring. The variety *fargesii*, however, has thinner, more graceful branches with a light tan bark. At the edge of a wooded area or against a dark background, variety *fargesii*'s intricate, angular branching nearly glows through the winter months.

This brings us around to the question of where to plant it. The first place I saw it growing was in the Washington Park Arboretum under a high and relatively thick canopy of deciduous trees. Although these plants have done well over the years, they have grown taller (15 to 20 feet) and leggier than ones I have since planted and observed in more open eastern exposures, as well as in full, all day and western sun situations (10 to 12 feet). Variety *fargesii* seems to be more tolerant of shady conditions; *Clerodendrum trichotomum* wants a sunnier location.

Both forms are fairly drought tolerant. A year-and-a-half-old specimen of *Clerodendrum trichotomum* and a six-year-old plant of variety *fargesii* on our property both survived the 1992 summer with a minimum of water attention (two to three good soakings). The older plant is in very dry and relatively unamended soil at the edge of a stand of Douglas-firs and usually shows a bit of drought stress by late August. The species is in a richer soil with lots of moisture-retaining organic matter and seems to do just fine on a minimal watering regime.

The question of harmonious plant cohabitation in the garden or border is always perplexing, and the task of combining any color with magenta and turquoise is daunting at best. Although we have avoided the question at home by giving both plants a wide berth to grow in, some combinations are still to be tested.

One thought was to bring in a close relative,

Patricia Pineheart Oswald

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**Callicarpa*, for a fall color riot. As long as we're going for intensity, why not add the purple berries of *Callicarpa bodinieri* 'Profusion'? If we want to tone things down, maybe the pale pink blossoms of *Fuchsia magellanica* var. *molinae* would calm the color jitters. Possibly even *Viburnum bodnantense* could be brought in to add a bit of fragrance with pink blossoms to the scene.

Or, maybe *Clerodendrum trichotomum* could be left to stand on its own, to be shrouded through the summer in its lush, if slightly pungent, foliage, only to erupt into sprays of white fragrance and "those can't be real" colored berries just at the time when almost everything else is looking like winter. With all this in mind, where you plant the harlequin glorybower is up to you.

Peter Ray writes film reviews for the *Vashon Island Beachcomber*, rides his bicycle, observes and photographs plants, and in the remaining waking hours owns and operates Puget Garden Resources.

Reference

Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada. 1976. NY: Macmillan.

Hazard Trees in the Home Landscape

photos & text by Libbie Soden

Two of the top ten questions people ask of tree care professionals are: “Is that tree dangerous?” and “How can I tell?” People living near large trees, either landscape or street trees, are often concerned about the safety of a tree; frequently that concern is justified. What makes a tree hazardous? There are two essentials: a tree that is structurally unsound and a target (people, buildings, cars) that will be injured or damaged should the tree fall.

People tend to think of trees as immortal since a tree’s life span often is much longer than a human’s, but trees have life expectancies, too. They grow from seedling to sapling to mature adult and then with age or poor health, decline and die. When large trees decline, they begin to die back, causing dead branches or tree sections to fall, which creates hazards to people or things beneath. Urban stresses can speed this decline.

The average life span of an urban street tree is only 35 years. It suffers from air pollution, water pollution, and compacted soil. Often, it also sustains physical injury from vandalism, car damage, or—in many home settings—the deadly lawn mower or weed eater blight (girdling and bark injury from repeated bumping by lawn mowers and string trimmers). All these stresses and injuries weaken the tree or provide access for decay fungi, and can shorten the tree’s life.

Glossary

Certified arborist is a member of the International Society of Arboriculture who has been an arborist for three years, passed a written examination, and maintains skills through continuing education credits. Call the Pacific Northwest Society (see “For Further Information”) for referrals.

Leader is the upward-growing shoot or branch off a shrub or tree.

Included, here, signifies ingrown.

Evaluating Trees for Hazard

When evaluating trees for hazard, look for several types of defects. Some of the more obvious ones are dead branches, deep open cracks in the trunk and branches, open cracks below joining stems, large branches growing rapidly from topping cuts, and mushrooms or “conks” on the roots or trunk that can indicate the presence of internal decay. Less obvious danger signals are light green or yellowish leaves and fewer leaves or needles than normal in the crown. These symptoms can indicate decline or decay in the root system, which can cause branches to die or the whole tree to fall.

Patterns of Tree Growth and Failure are Predictable

Sometimes a tree will have highly visible defects that are clearly dangerous. More often, however, trees have several less obvious defects, a combination of which can create a hazard. According to Mathany and Clark (1991), trees fail in observable patterns. Different species fail in characteristic ways, and some are more likely to fail than others. It is important to know the characteristic form and growth patterns of a species so you can recognize changes in that form. Also, inspect your trees regularly so you can be aware of changes in condition.

There are some known characteristic patterns of failure that have been observed in tree species common in the Puget Sound region. Most of our native conifers, such as **Pseudotsuga menziesii* (Douglas-fir) and **Alnus rubra* (red alder), grow with a single main trunk or leader and smaller side branches. When the tops of such trees are broken or pruned out, they tend to grow multiple leaders. These are weakly attached to the trunk and will frequently break out and fall during windstorms or when covered with snow.

**Acer saccharinum*, silver maple, is notorious for weak wood and limbs that break with a light snow load. In an autumn snowstorm in Cincinnati, Ohio, 80 percent of the over 800 trees damaged or destroyed were silver maples. Small- to medium-sized branches tend to break out of Douglas-fir during windstorms.

Some trees tend to shed large branches. This is common in **Cedrus deodara* (Deodar cedar), **Cedrus atlantica* (Atlas cedar), **Aesculus hippocastanum* (horse chestnut), and **Robinia pseudo-acacia* (the black locust). The failure of large branches in these species often is due to the nar-



Two essentials are required for a tree to be a hazard: a tree that is structurally unsound and a target—people, buildings, and cars that will be injured or damaged should the tree fall.

row angle of branch attachment (how the branch is attached to the trunk or leader) and the presence of included or ingrown bark. At Seattle University some years ago, a branch two feet in diameter dropped from an Atlas cedar on a calm day in summer—directly across the entry courtyard of one of the dormitories. Fortunately, no one was injured by this 1,500-pound branch when it fell in an area often used as a gathering spot for students. Examination of the tree showed no visible decay, but there was a narrow angle of branch attachment and included or ingrown bark. The heavy branch just pulled out of the trunk of the tree. **Acer macrophyllum*, the big leaf maple, often grows from stump sprouts. When the trunks are large and the original stump decays, these trees can break apart at the base.

Human Activities Injure Trees and Create Hazards

In urban settings, human activities frequently cause trees to become hazardous. Tree topping, the removal of the top of the tree or large branches to reduce height, is one of the most destructive things people do to trees. Topped trees (if they live) often resprout large, weakly attached branches that tend to break out of the tree. Root

injury is another common cause of tree failure and often causes the whole tree to fall. Most tree roots grow in the top 18 to 24 inches of soil and spread far beyond the drip line of the tree. Tree roots are easily injured, particularly around building and construction sites. It sometimes takes several years before injuries to roots show symptoms; trees may slowly decline and die. At other times, trees are suddenly exposed to wind when surrounding forest is removed, and the trees may blow down. In many new housing developments, adequate measures are not taken to protect existing trees from damage during construction. Frequently, damage could be prevented by hiring an arborist to determine preservation and protection guidelines before construction activities begin. Street-tree roots are often cut for sidewalk repair. Even mounding soil over tree roots or driving vehicles under trees can damage root systems. Signs and symptoms of root damage or disease include light green or yellowish foliage, loss of foliage in the crown of the tree and, occasionally, mushrooms or other fungus “fruiting” bodies on the roots or root crown of the tree.

Among our native trees, **Tsuga heterophylla* (western hemlock) is particularly susceptible to

root damage since it is an especially shallow-rooting species. A winter storm in Everett, Washington, blew down more than 150 large conifers, most of them western hemlocks. Of these trees, about 85 percent showed advanced root decay caused by a variety of root-rot fungus. In some cases these trees had been impacted by some kind of root damage and, in other cases, no particular triggering mechanism could be found. But the trees fell across roads, power lines, and on cars and houses.

What to Do If You Think A Tree is Hazardous

If you suspect that the large trees near your home might be hazardous, the best thing to do is to have a tree care professional assess the situation. If the tree is on public property, call the appropriate city arborist or forester. If it is on private property, contact a qualified arborist (under "Tree Service" in the Yellow Pages or by calling the Pacific Northwest Chapter of the International Society of Arboriculture [see For Further Information, below]) and ask for a hazard tree evaluation. Remember that a hazard tree is only a hazard if a target is present. In some cases, you may be able to simply remove the target, such as a picnic table or child's swing set. Your tree care professional can help you decide what kinds of action may be needed to ensure your safety.

Reference

Mathany, N. P., and J. R. Clark. 1991. "Hazards?" *Arborist News* 1(3): 9-13.

For Further Information

Mathany, N., and J. Clark. 1992. "A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas." Urbana, IL: International Society of Arboriculture. 81 pp.

Mills, L., and K. Russell. 1981. "Detection and Correction of Hazard Trees in Washington's Recreation Areas" (DNR Report No. 42). Olympia, WA: Washington State Department of Natural Resources. 37 pp.

Pacific Northwest Chapter—International Society of Arboriculture (ISA). PO Box 65054, Seattle, WA 98155. (206) 365-3901. The classification in the Yellow Pages is under "Tree Service," yet the designation of arborist frequently is not given. Find out about certified tree care professionals by calling ISA directly.

Urban Forestry Staff. 1990. "Hazard Tree Booklet." Everett, WA: Everett Parks and Recreation Department. 10 pp.

Chris Pfeiffer, Arboretum horticulturist, suggests removing large dead limbs periodically; cabling and bracing to protect against breakage of limbs with included bark; and avoiding those practices mentioned in the article that cause damage.



Damage to the root system can introduce decay fungi which weaken the roots and can cause the tree to fall.



Finding Favorite English Fruit Trees for the Pacific Northwest

by Sam Benowitz

The genteel, yet rigorous, English tradition of fruit growing, education, marketing, and display has influenced a Pacific Northwest nurseryman to introduce European fruit trees to the maritime Northwest.

Ever since King Henry VIII sent his “fruit-er” Richard Harris to France in 1533, the English have been systematically testing to find out which of the world’s fruit varieties will thrive in their cool, moist maritime climate. In the Pacific Northwest, we have a similar climate, especially to that of western England. Therefore, since the English sort of speak our language, we can learn from what they have found out in the last 450 years.

As the proprietor of a mail-order and retail nursery selling fruits, nuts, and berries in Morton, Washington, 100 miles south of Seattle, I have always been interested in testing new varieties of fruit trees. A trip to England in August 1992 enabled me to see fruit test gardens, talk with growers, and purchase stock to experiment with for introduction in the Pacific Northwest.

Setting the Stage at Wisley Gardens

The Royal Horticultural Society’s (RHS) Wisley Gardens are to gardeners what Disneyland is for children. The store is a paradise that meets the gardener’s every dream. It includes kitchen items for processing fruit, as well as beautiful items with

stunning, artistic horticultural patterns. English gardeners eat off sets of plates that they can purchase at Wisley with colorful designs of favorite fruits, vegetables, or even weeds.

The adjoining buildings sport lines of people who want to purchase the dozens of varieties of ripe fruit for sale. They visit the food section to purchase jars of Mirabelle plum, Medlar, Sloe (a small blue plum) or English hedgerow preserves. If they are hungry, they visit the dining room or cafeteria where they have their pick of English ciders to wash down lunch or enjoy tea with some exotic fruit pastries.

Visitors will need the energy to spend the afternoon in the RHS garden center which offers about 9,000 varieties of potted plants, many of which are unknown or hard to find in the United States. The amazingly knowledgeable staff answers all questions and identifies whatever plants or pests the backyard gardener can drag in. From behind their desk, the nursery people try, with great merit, to answer.

The plants at the RHS garden center are ones that thrive in southern England, a climate similar in many ways to the Puget Sound region. It is not impossible to bring plants back, either. With the proper USDA permits, paying a £20 fee, and calling in an English inspector to issue a phytosanitary certificate, I was able to bring plants under a post-entry quarantine. This isn’t practical for the average gardener but my nursery is now growing a range of imports from the variegated *Ampelopsis* with colorful edible fruit to a couple of edible groundcover vacciniums to edible variegated or purple foliage elderberries, and the Queen’s mulberry from Buckingham Palace, to name just a few.

The plants in the garden center are mostly ornamentals. Many are listed in *The Hillier Manual of Trees and Shrubs*. The vines section alone contained hundreds of varieties, including many hardy jasmines and interesting passifloras.

To round out the visit are acre upon acre of immaculate gardens featuring every plant there is that is hardy in England. What is most educational is the dozens of small theme gardens that give backyard gardeners ideas of how to display different types of plants in their yard. The main fruit garden is a college education in a backyard plot. You can learn hundreds of techniques and dozens of ways of growing fruit. The book, *Fruit*, by former RHS Fruit Officer Harry Baker, is available from RHS Wisley or from Raintree Nursery. It describes the techniques in detail but to capture the beauty and ingenuity you must see and experience it in person. Anyone can become a member of the RHS, which includes receiving the interesting magazine, and free admission to the gardens and the many educational seminars. Write to RHS at 80 Vincent Square, London SW1P ZPE, United Kingdom.

Trying English Fruit Trees in Northwest Gardens

Fruit has been cultivated in England since the time of the Romans. Since then, the English have developed an amazing horticultural tradition. English nurseries carry an extensive collection of both ornamental and edible plant varieties. They routinely produce voluminous catalogs fully describing each entry. Since I was most interested in fruit, I concentrated on visiting nurseries with that specialty. I was interested to see small-scale fruit nursery practices, so I visited Scotts Nursery.

Scotts, in Merriot, Somerset, has been operating on the same location in southwestern England for 300 years. The nurserymen still individually dig trees as the day's orders come in and deliver them throughout the country on their own trucks. Scotts has seven types of Damson plums for sale and nine types of Gage plums; where nurseries in the United States might list just one type of fruit, Scotts will have a dozen. They also offer over 200 apples, 35 special cider apples, and 20 cider "perry" pears, as well as 35 types of ground-cover roses. We are now trying a few of the varieties proven to do best in England at Raintree Nursery.

Growing European Plums

European plum trees tend to be 10-15 feet tall and upright with attractive deep green foliage. They are adorned with beautiful white flowers in the spring. Most are hardy to -20° F, need full sun, and grow well on heavy soils. They can be grown as a central leader tree and require little

thinning or pruning when mature. Plums get brown rot, the biggest fungal problem, which can be controlled with copper sprays at blossom time and in the fall. Some varieties tend to split, providing an opening for brown rot infections. All things considered, however, plums are among the most reliable fruits for the Northwest region.

In 1992 I started offering 'Kirke's Blue' plum, which is a large, round juicy prune plum with dark blue skin and melting yellow flesh. It is the finest tasting plum I have eaten. 'Kirke's Blue' plum should be planted in the spring in an area having full sun. It grows 10-15 feet tall and produces in about four to five years, yielding a box or more per tree.

Also, the 'Coe's Golden Drop' plum is famous in England for its intense apricot-like flavor. This legendary golden plum was introduced in 1800 at Bury St. Edmunds, England. The medium-to-large fruits have straw-yellow skin and golden flesh. They are sweet and juicy and have a pocket of intense apricot-like flavor. This freestone fruit ripens in late September.

'Mirabelle' is a great-tasting plum that thrives in our climate. This small yellow plum with yellow flesh and red dots on the skin isn't beautiful, but it is delicious. With its spreading tree habit, it is incredibly productive and fantastic for making jams, tarts or compotes, and for canning. The fruit is prized in France for making brandy. Eat this freestone plum in late August. It's as good today as it was in 1790.

Another British favorite is the productive and early ripening 'Early Laxton' plum. 'Early Laxton' is a beautiful pink-orange oblong plum with delicious yellow meaty flesh—the first European plum of the season to ripen. Each year the tree overflows with fruit and thinning is required if you want them to be of bigger size. In 1916 it received the British Award of Merit but is still virtually unknown in America. It is high in Vitamin C and rated tops for cooking. Of the freestone variety, it is upright and carefree.

'Imperial Epineuse' is a sweet French prune plum used at the English National Fruit Trials as a standard to judge plum flavor. The fruit is very sweet and freestone, medium to large, red to purple with a meaty yellow flesh. The tree is an attractive upright grower, ripening in early September.

Popular English Apples

The most popular cooking apple in England is called 'Bramley'. It is scab resistant and also has

proven to thrive in the Northwest.

The favorite English apple, 'Cox's Orange Pippin', is as hard to grow here as it is in England. However, its fantastic flavor has been imparted to several 'Cox's Orange' crosses. These include the new selection called 'Alkemene'. 'Alkemene' is a 'Cox's Orange Pippin' cross from Germany that has an excellent combination of sweet and tart flavors. It bears heavy crops of annual red-orange conical shaped fruit that ripens in September. This one is scab resistant and has become a new favorite at the Washington State University-Mt. Vernon fruit testing station because of its excellent flavor, high productivity, and easy-to-care-for upright growth.

Sam Benowitz owns Raintree Nursery in Morton, Washington.

Reference

Hillier Nurseries Ltd. 1991. *The Hillier Manual of Trees and Shrubs*. Revised and expanded by the L.H. Bailey Hortorium, Cornell University. 6th ed. London: David & Charles.

Sources of European Fruit Trees for the Northwest

Raintree Nursery	South Meadows Fruit Garden
391 Butts Road	PO Box SM
Morton, WA 98356	Lakeside, MI 49116



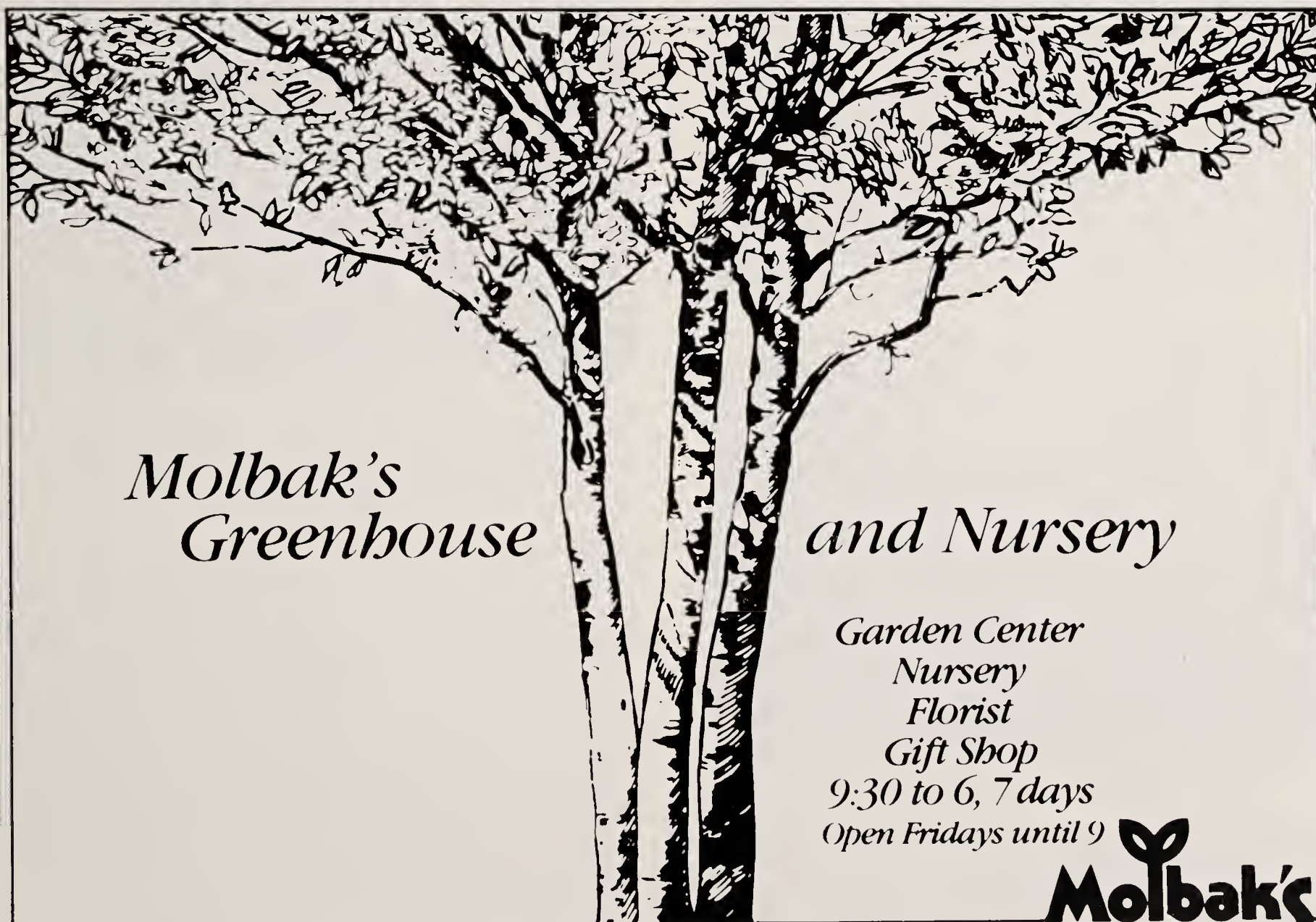
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Crab Apples Revisited

by Robert A. Norton & Jacky King,
Washington State University
Research and Extension Unit,
Mount Vernon, Washington

The Washington State University Research and Extension Unit in Mount Vernon, Washington, tests new and better ornamental crabapple selections for Puget Sound gardeners.

The crab apple is the most important small-scale flowering tree in the northern United States and southern Canada. Crab apples are dependably winter hardy and they are available in a myriad of sizes, shapes, foliage textures, and colors. They are not overly finicky as to soil condition, are easy to transplant bare root, and generally are long lived. In addition to their brief but spectacular floral display in colors ranging from pure white to near red, their foliage color may be copper or purple, as well as green. Crab apples can

present a fine show of fruit of all sizes and shapes in red or yellow colors in fall and winter; some remain as food for birds until spring.

In the Pacific Northwest, particularly in the more humid coastal areas, the crab apple has not been as widely used by landscape designers and gardeners as it has been in other areas of the country. A major reason for this is that the older cultivars of crab apple, irreverently called “crabs,” often were partially defoliated by apple scab and other diseases toward midsummer, leaving a bare-branched, unsightly skeleton that limped along until the next season, when it would provide a brief period of floral glory before again being denuded. A program to identify and popularize newer, more disease-resistant cultivars promises a much brighter future for crab apples as ornamental landscape trees.

There are more than 700 varieties and cultivars of crab apples in existence. Many of them have been improperly described and are not taxonomically valid. In many cases it is impossible to even assign a cultivar to a particular species. Lacking good reference material on taxonomic characteristics, landscape architects, homeowners, nursery personnel, and horticulturists often select cultivars on the basis of flower display and tree shape, with little consideration of disease resistance, foliage type, and fruiting characteristics; nor do they seem to look for aesthetic quality throughout the entire year.

In 1984, Dr. Thomas Green, working with other horticulturists and plant pathologists, initiated the National Crabapple Evaluation Program involving 23 cooperating stations, both public and private, throughout the United States. Two of them are located in the Pacific Northwest—one at the J. Frank Schmidt & Son, Inc. Nursery near Portland, Oregon, and the other at the Washington State University Research and Extension Unit, Mount Vernon, Washington.

At each site, there are approximately 50 taxa (cultivars) of three trees each. With the exception of three disease-susceptible controls (Hopa, Radiant, and Royalty), all were selected for at least some resistance to apple scab (*Venturia inaequalis*), fire blight (*Erwinia amylovora*), cedar-apple rust (*Gymnosporangium juniperus-virginiana*), or powdery mildew (*Podosphaera leucotricha*).

At the Mount Vernon site, we have been evaluating these crab apples for disease resistance and

Glossary

Bare root plants are those dormant plants for sale without soil (yet kept from being dried out).

Cultivar is a selected form of a species or hybrid.

c.v. is the abbreviation for cultivar.

Disease resistant trees show no evidence of scab, mildew, cedar-apple rust, or fire blight since planting; no need for fungicide applications.

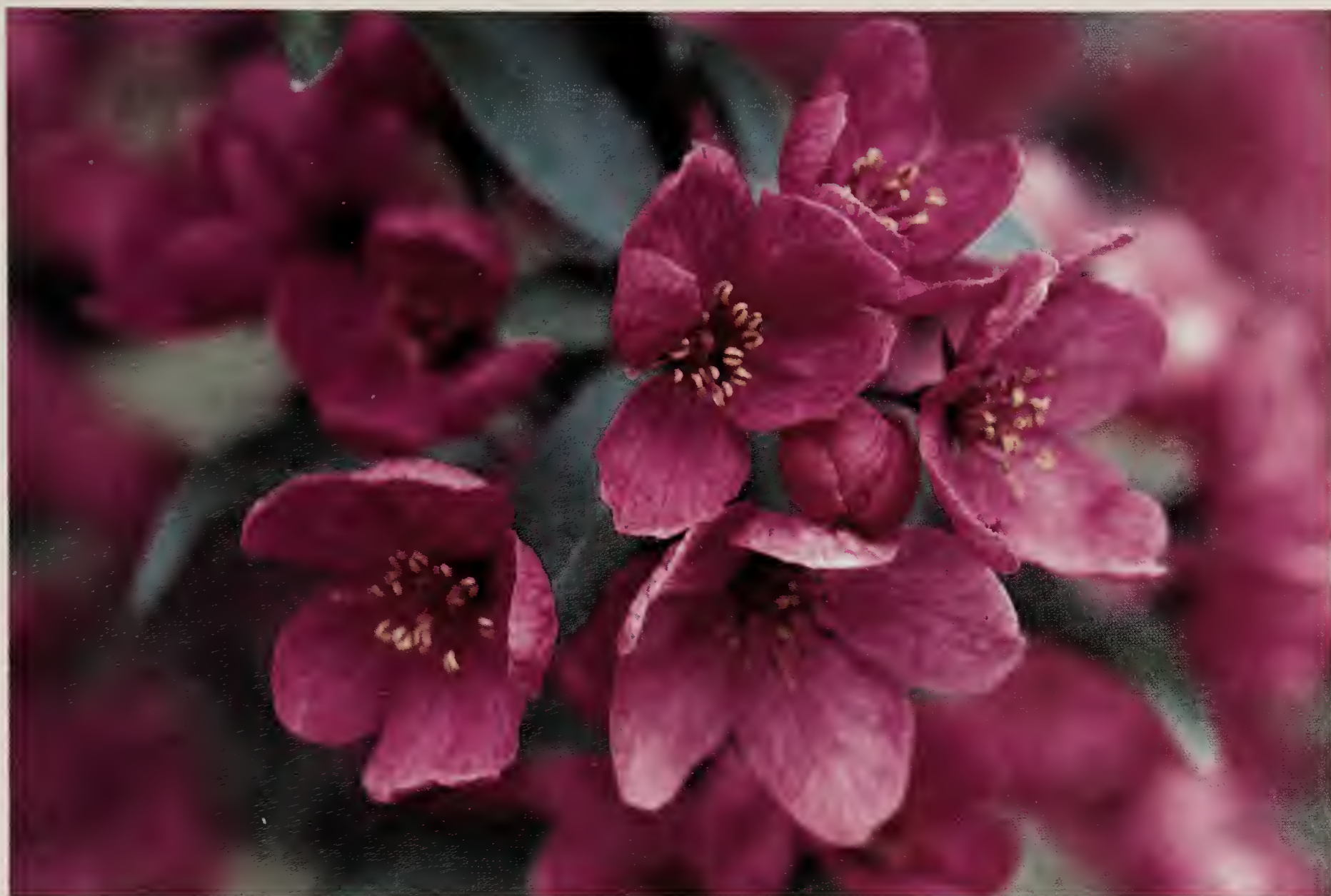
Oblate indicates flat at the poles.

Scab (mildew) slight, indicates some evidence of disease found occasionally, but neither causes premature defoliation nor justifies fungicide applications.

Scab (mildew) moderate, indicates evidence of disease observed every year, some premature defoliation; fungicide applications would be beneficial.

Scab (mildew) susceptible, indicates severe disease infection; severe defoliation unless treated with fungicides.

Taxonomy is the study of scientific classification (here, of plants).



(Counterclockwise from top) 'Prairiefire', 'Dolgo' (edible), 'Professor Sprenger', and 'Snowdrift' (above) are excellent crabapple varieties for the Pacific Northwest.



aesthetic qualities from the time they first reached blooming size in 1986. On the basis of those evaluations, we have selected 20 promising disease-resistant ornamental cultivars and six cultivars valuable also for their edible fruit qualities (fresh eating, jelly, or preserving). Those cultivars are described below. Some of them are patented, as indicated.

Promising Ornamental Crab Apples for the Pacific Northwest

1. **'Christmas Holly'** (patented). Small bright

red buds; white flowers moderately fragrant; tree low, spreading, green; small leaves remaining green to late fall; numerous small bright-red fruits persistent through winter. Disease resistant.

2. **'David'**. Showy pink buds; dense brilliant white flowers, mildly fragrant; tree compact, rounded; green glossy leaves; large, numerous bright-red fruits persistent through winter. Slight scab.

3. ***'Donald Wyman'**. Red buds; dense brilliant white flowers, mildly fragrant; tree rounded; green attractive leaves; numerous small bright-red fruits that persist until spring; annual bearer. Scab moderate, slight mildew.

4. *Malus floribunda*. Large showy bright buds; pink-and-white flowers, mildly fragrant; tree densely branched with semi-weeping habit; green small leaves; fruits yellow blushed red, non-persistent. Scab slight.

5. **'Indian Summer'**. Maroon buds, pink flowers; petal color fades gradually but remains attractive; slightly fragrant; tree spreading; leaves copper shading to purple-brown; fruits bright red, numerous, colorful, persistent. Excellent orange to red-orange autumn leaf color. Scab moderate to slight.

6. **'Jewelberry'**. Very small, bright-red buds; small white flowers slightly fragrant; tree low, shrubby, nonvigorous; small, bright green leaves; fruits small, red, non-persistent. Suitable in miniature gardens. Scab slight.

7. **'Mary Potter'**. Red buds and large showy white flowers; very fragrant; green low-spreading; leaves green; fruits dark red, very numerous, persistent. Excellent for smaller yards. Scab slight to moderate.

8. **'Molten Lava'** (patented). Pink buds and large white flowers that are abundant; mildly fragrant bloom cascades attractively; tree vigorous, excellent weeping habit; green leaves; small persistent red-orange fruit. Disease resistant.

9. **'Ormiston Roy'**. Pink buds, pink-and-white flowers; profuse bloom that is mildly fragrant; tree spreading, rounded; leaves green; fruits small, very numerous, yellow blushed pink and persistent until spring. Scab slight.

10. **'Prairiefire'**. Maroon buds, vivid rose-pink flowers; very profuse bloom lacks fragrance; spectacular late-season display; tree shrubby, dense, leaves bright coppery purple; fruits non-persistent. Excellent red-orange fall color. Observed scab slight to moderate.

11. ***'Professor Sprenger'**. Red buds; pink-and-white flowers very fragrant; tree upright, spreading; green leaves; fruits bright yellow-orange, very numerous, attractive, persistent. Yellow-bronze to orange fall color. Disease resistant. A good specimen can be seen at the Univer-

sity of Washington's 'Red Square.'

12. **'Ralph Shay'**. Pink buds; white flowers moderately fragrant; tree upright, spreading; green leaves; fruits very large, bright red, numerous, and colorful—persist until spring. Scab moderate.

13. **Malus sargentii*. Pale pink buds; intense, pure white flowers; abundant, very fragrant bloom covers low, broadly spreading tree; bright green leaves tend to drop in early winter; dark red fruit is non-persistent. A good accent set against taller more upright trees. Scab resistant.

14. **'Silver Moon'**. Large pale pink buds, white flowers pendent in clusters, moderately fragrant; bloom very late, profuse; tree upright, columnar with small green leaves; fruits small, dark red, profuse, somewhat persistent. Scab moderate to slight.

15. **'Snowdrift'**. Deep pink buds with white flowers with dense, clustered bloom that is mildly fragrant; tree compact, rounded, well balanced with green leaves; orange-red fruits tend to drop. Scab moderate.

16. **'Sugar Tyme'** (patented). Bright pink buds, white flowers, dense attractive blooms that are moderately fragrant; tree upright and oval with green leaves; fruits are small, very numerous, attractive and bright red and persist until spring. Scab slight to moderate.

17. **Malus tschonoskii*. Flowers white, late, inconspicuous; upright, narrowly oval tree with excellent columnar habit and attractive silvery green leaves that become orange, red, or purple in fall; sets very few fruits. Scab and mildew resistant.

18. **'Weeping Candied Apple'** (patented). Carmine red buds, large showy deep pink flowers slightly fragrant; tree weeping; leaves dark green tinged brownish red; fruits small, bright red, attractive and may persist until spring. Excellent fall leaf color. Scab moderate.

19. ***'White Angel'**. Pink buds, white flowers, dense precocious bloom habit; very fragrant; tree upright and spreading with glossy dark green leaves; fruits very numerous, orange-red, attractive, and persistent. Scab slight.

20. *Malus zumi* **'Calocarpa'**. Large bright pinkish-red buds; white very fragrant flowers; tree attractive, dense, spreading with green leaves; fruits bright red-orange, small, numerous and persistent. Scab moderate.

Edible Crab Apples

1. **'Centennial'**. Pale pink buds; white flowers mildly fragrant; tree spreading and leaves green;

Testing Fruit in the Puget Sound Region

(based on information from the Western Washington Treefruit Research Foundation)

For the last twenty-five years, Dr. Robert Norton has been doing fruit testing at the Washington State University (WSU) Research and Extension Unit at Mt. Vernon, 60 miles north of Seattle. During that time, Dr. Norton, with the help of Gary Moulton and Jacky King, has tested hundreds of varieties. They have discovered which do best in the Puget Sound region. Because of their work, backyard fruit growers can now grow apricots, Asian pears, disease-resistant apples, crack-resistant cherries, leaf-curl resistant peaches, and the most delicious and productive plums. It is because of their work that regional nurseries can offer the varieties of fruit that backyard growers in our unique climatic region can use successfully. They provided these varieties and lots of information about them to the Extension Service, Master Gardeners, and the gardening public without directly charging for the products or services. About three years ago the rules changed and the test trees and program were about to be destroyed.

However, in the face of funding cuts at WSU, a group of interested nurserymen, commercial growers, hobbyists, backyard growers, and researchers united in a concerted effort to sustain existing research and to promote new research in these areas. Formation of the Western Washington Treefruit Research Foundation is the culmination of this growing movement. We would like for you to join in these crucial cooperative efforts.

The Western Washington Treefruit Research Foundation

The \$20 annual membership covers: free admission to seasonal field events (next one in February 1993); Saturday Station tours and fruit picking during harvest season; newsletter; Scionwood purchases; and input into future projects. For more information, write to 391 Butts Road, Morton, WA 98356.

fruit yellow blushed to 90% bright red—sweet, edible fresh from tree, size 1 to 1½" diameter in elongated shape. Scab slight.

2. **‘Chestnut’**. Red buds; white flowers moderately fragrant; tree low spreading, leaves green; fruit dull yellow, blushed and striped orange; sweet, nut-like flavor; edible fresh from tree; size 1½ to 2" diameter, roundish oblate. Slight to moderate scab.

3. ***‘Dolgo’** and **‘Martha Dolgo’**. Red buds; white flowers moderately fragrant, early bloom; tree upright, spreading, open; leaves glossy green; fruit red, edible but tart with culinary use; size 1½" diameter, elongated. Scab susceptible.

4. **‘German’**. Red buds, white flowers mildly fragrant; tree upright, spreading. Leaves green, very productive; fruit yellow blushed to 90% red; good for jelly; size 1 to 1¼" long and ovate. Scab slight to moderate.

5. **‘Ralph Shay’**. Red fruits very tart and astringent, but good for jelly; size 1 to 1¼". Heavy fruit loads may cause tree to develop weeping habit. Scab resistant.

6. **‘Whitney’**. Red buds; white flowers moderately fragrant; tree upright, spreading, vigorous, heavy producer; fruit yellow striped to

75% red; edible from tree though somewhat tart; size very large for crab, 2 to 2¼" diameter, roundish and conic. Scab slight to moderate.

More Information

Washington Park Arboretum, XD-10, University of Washington, Seattle, WA. The Arboretum has almost 100 crabapple taxa, some of which are in the Washington State University trial.

International Ornamental Crabapple Society, c/o The Morton Arboretum, Lisle, IL 60532. Membership, c/o Dr. Thomas L. Green, Executive Director (includes quarterly bulletin, \$15).

Robert A. Norton is an emeritus professor of horticulture, Washington State University.

Jacky King is a technical assistant at the Washington State University Research and Extension Unit, Mt. Vernon, Washington.

The Washington Park Arboretum has recently joined the National Crabapple Introduction Program. New crab apples will be displayed and evaluated at the Arboretum with duplicates at the Bellevue Botanical Garden. Contributions in support of this endeavor should be clearly marked and sent to The Arboretum Foundation, XD-10, University of Washington, Seattle, WA 98195.



Indumentum on the underside of the leaves of *Rhododendron crinigerum* can be seen in the Arboretum.

Nice Flowers— But What about the Indumentum?

by Kelly Dodson

When you “turn over a new leaf” with a rhododendron, it is an opportunity to find subtle colors and textures for your garden.

Rhododendrons are synonymous with the floral gluttony of spring. A gush of hybrid vigor signals the annual vernal debauchery amidst the ample trusses of *Rhododendron* ‘Cynthia’ and *R.* ‘Furnivall’s Daughter’. Unfortunately, the blossoms fade as rapidly as does the memory of the moment. Recriminations mount as you realize you were taken in by a peasant in finery. The next ten months of living with a shapeless green mass seems a high price for a fleeting diversion. But

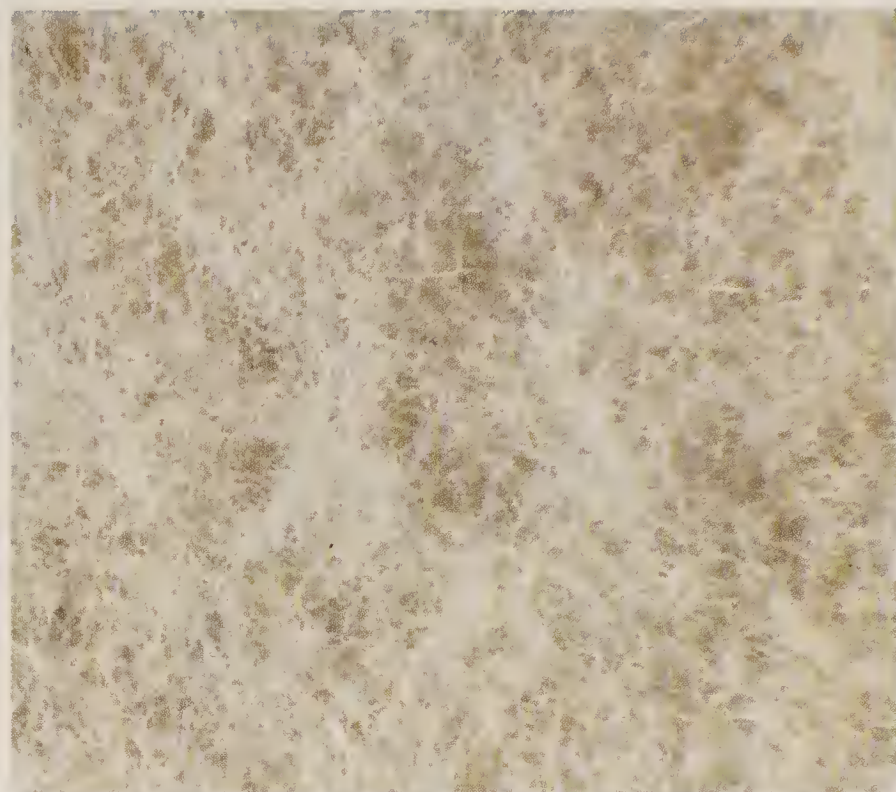
take heart. There are many rhododendrons of refinement whose complexity of form, texture, bark, and especially indumentum extends their allure beyond the obvious floral appeal.

Indumentum is a covering of hairs generally found on the underside of certain rhododendron leaves. When appearing on the upper surfaces of the leaves, these hairs are called tomentum and are most striking in the new growth. Very likely, the function of the indumentum is to maintain the moisture content of the air adjacent to the leaf surface and stabilize transpiration rates. There also may be some deterrent factor involved with certain chewing and sucking insects, although watching various caterpillars eagerly devouring indumented new shoots like so much asparagus, I wonder if this is more wishful speculation than reality.

H.H. Davidian recognizes 18 distinct hair types and 10 forms of these types in *The Rhododendron Species, Volume II*. This subject is complicated because these hairs exhibit considerable variation

(continued on page 16)

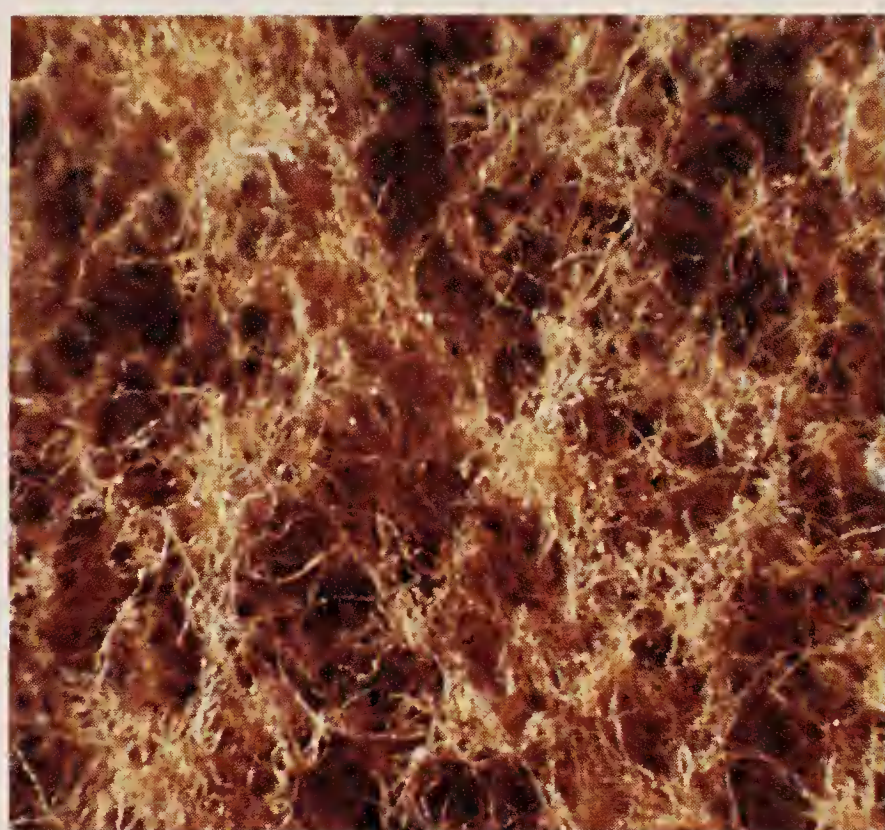
Clockwise: New leaf indumentum of *Rhododendron yakushimanum*, Exbury form; old indumentum of **R. bureavii*; underside of *bureavii* leaves (bottom); *R. proteoides* (below).



Art Dome



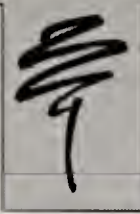
Lynn Watts



Art Dome



Lynn Watts



UNCOMMONLY BEAUTIFUL



WELLS MEDINA
N U R S E R Y
8300 N.E. 24th St., Bellevue 454-1853

within specific types and frequently integrate into other types of hairs. These differences are all significant in determining the taxonomy of the plant but often can be confusing and inconclusive.

Blooms are simply a bonus on those species cloaked with indumentum. My personal favorite is *Rhododendron elegantulum* whose narrow leaves sport a vibrant reddish-brown indumentum. I remember walking behind a west-facing grove of *R. elegantulum* as the early morning sun slanted down to flame the underside of each leaf—a memory that still provides me with pleasant wonder. Often difficult to propagate, *R. elegantulum* is uncommon in the trade and worth pursuing from specialist growers. Another stellar species is *R. pachysanthum*, a fairly recent introduction from Taiwan whose smallish leaves show a nice orange-brown indumentum. So colorful is the foliage that my wife gleaned discarded leaves from last year's propagation effort in order to use these dried bits as sprinklings of autumn jewels in our home.

**Rhododendron bureavii* is the consummate foliage plant. A low-growing shrub, its somewhat

broadly rounded leaves have a softly inviting appearance backed by a superb rusty brown indumentum. A fairly common hybrid of *Rhododendron* 'Fabia' x *R. bureavii* shows many of these characteristics to a lesser degree and is usually more easily obtainable than *R. bureavii*.

Rhododendron sherriffii is a small-boned aristocrat with all parts in perfect scale and taste. Its delicate twigs and leaves, contrasted with a chocolate indumentum and simple flowers of cherry red, is the embodiment of the phrase, "You can never be too rich or too thin."

Indumented rhododendrons can add subtle touches of color to the garden or provide a design element of dramatic proportions. A garden we created on the Key Peninsula provides a good example. Borrowing and reinforcing aspects of the flora native to the site, we planted a small grove of large birchbark cherries (**Prunus serrula*) whose gently exfoliating mahogany red bark echoes that of existing madrones (**Arbutus menziesii*). Stepping down, specimen plants of *Rhododendron* 'Sir Charles Lemon', a hybrid of *R. arboreum* ssp. *cinnamomeum*, creates an understory of rufous highlights with its exuberant reddish brown indumentum. Swatches of *Polygonatum affine* 'Darjeeling Red' nearby make a rich brown carpet in winter. The use of non-indumented rhododendrons would have diminished not only the design but the charm of the garden.

A few more of the many indumented species to seek out include *Rhododendron rex* ssp. *fictolactum*, **R. fulvum*, **R. tsariense*, *R. arboreum* ssp. *cinnamomeum* and **R. campanulatum* in its various forms.

When choosing your next rhododendron for the garden, look beyond the flowers, turn over a leaf, and consider indumentum.

Kelly Dodson co-owns Reflective Gardens, a garden design and installation service, with Sue Skelly. Kelly is an editorial board member of *The Washington Park Arboretum Bulletin* and a former horticulturist with the Rhododendron Species Foundation.

Further Reading

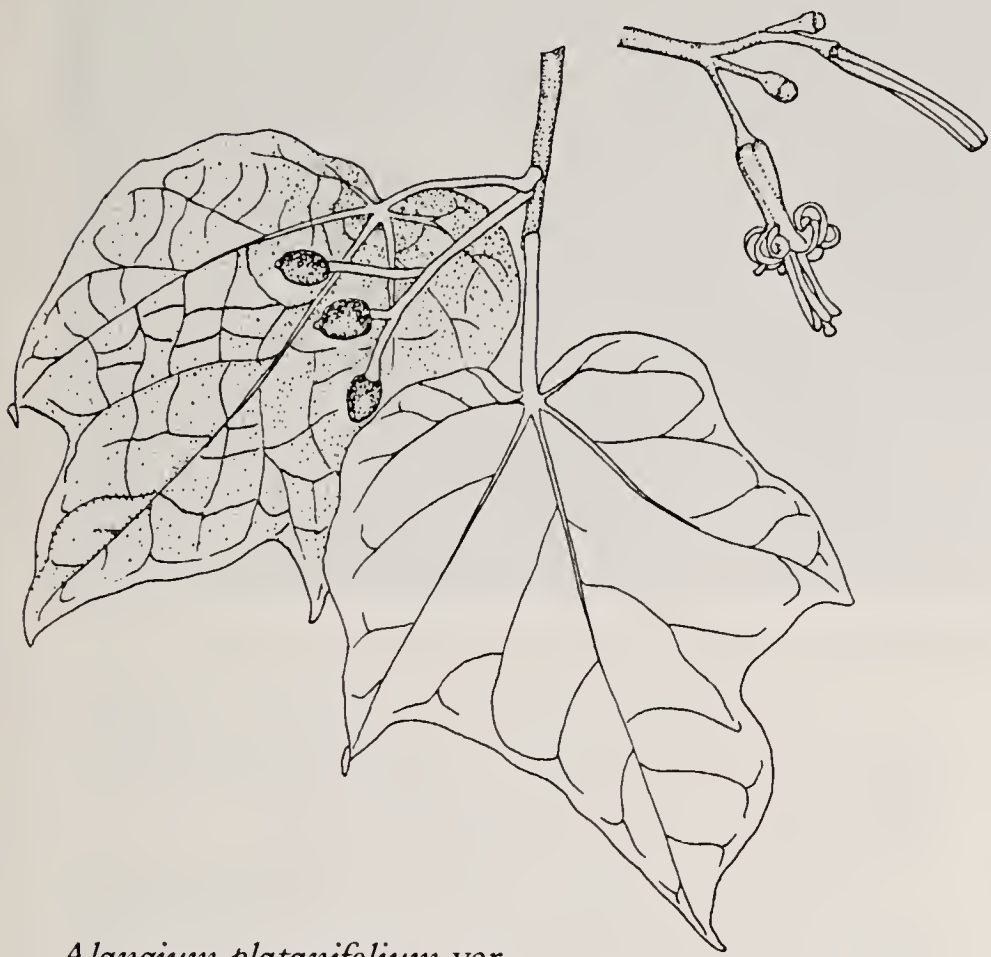
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Alangium platanifolium— A Little-known Asian Shrub

Gerald B. Straley



Alangium platanifolium var. *macrophyllum*. Underside of branch with fruits (left); open flower and flower bud (right).

by Gerald B. Straley

Some plant enthusiasts are content merely to grow a particular desirable plant. Others want to read anything they can about it, often bringing a plant in to the University of British Columbia (UBC) Botanical Garden boasting that they have looked in scores of books and cannot find out anything about it. What is it, they want to know, and where can they get more information? My interests as a professional certainly fall into the category of wanting to learn about the uncommon plants. I keep files on those for which there is very little information in the usual standard references.

**Alangium platanifolium* is near the top of my recent list of choice and uncommon plants growing in the University of British Columbia Botanical Garden. The collections number some 16,000 accessions. In recent years, through numerous contacts worldwide, we have been able to assemble a fine collection of Asian plants that are predominantly from responsible wild-collected sources, making them a valuable gene pool for study and breeding work. Many of these are now growing happily under the high open canopy of a mature mixed coniferous forest, just above the waters of the Strait of Georgia.

In 1987, I noticed a bold-leaved shrub, flowering for the first time, among our Asian Garden collections. It had been received in 1982 as a small plant from the Hillier Arboretum in England. The large shrub (or small, multi-trunked tree) is now about 12 feet tall and a bit wider, with attractive foliage throughout the summer. The plant is *Alangium platanifolium*, in its own family, the Alangiaceae. The family's nearest relatives—although it is superficially very different from them—are thought to be the Nysaceae, which includes such familiar garden plants as *Nyssa* and *Davidia*, and the Cornaceae, which includes *Cornus* (dogwood). The family is generally considered monotypic with about 20 species of *Alangium* found from central China to Africa and Australia. *Alangium platanifolium* is native from China and Korea to Japan.

Members of the genus are very rarely seen in cultivation in North America. *Alangium platanifolium* is not grown enough to have a common name, but the generic name is simple enough that it will do nicely. The word *Alangium* comes from an anagram of an old name, Angolam, and the specific epithet of this species is derived from the resemblance of its leaves to those of the genus **Platanus*, the sycamores or plane trees. It reminds me more of a maple with alternate leaves. There are two naturally occurring varieties—variety *platanifolium* has leaves lobed more than

Glossary

Anther is the male pollen-producing part of a flower.

Cordate is heart shaped.

Filament is the stalk that bears an anther.

IBA is a synthetic plant hormone (indolebutyric acid).

Monotypic refers here to a family containing only one genus (can also refer to a genus containing only one species).

Petiole is a leaf stalk.

Pubescence refers to hairiness of leaves.

Sepal is a whorl of structures, often green, below the petals.

Specific epithet is the second word of a Latin binomial, denoting the species.



Alangium platanifolium in fruit.

half-way to the midrib, while our variety **macrophyllum* has much less deeply lobed leaves. The Washington Park Arboretum has *Alangium platanifolium* var. *macrophyllum* in the Woodland Garden near the little wooden foot bridge.

Our UBC plant now has a wide-spreading habit, with a broad oval crown, and the lower branches arching out nearly to the ground; the trunk (actually two trunks, branching just above the ground) is almost hidden by the lower branches. It may take on a more tree-like form and lose the lower branches as it reaches maturity.

In the spring, it is relatively late to leaf out, usually not until May in Vancouver. Young expanding leaves appear on new shoots that are distinctly curved or bent under. The young leaves are somewhat silvery in appearance, because of a coating of short hairs, reminiscent of young grape foliage. The leaves remain softly pubescent, especially above, at maturity. The strong feature of the tree is its fully expanded foliage of large chartreuse leaves that remain attractive all summer, giving the effect of a golden light in the garden. The color reminds me somewhat of that of the leaves of *Catalpa bignonioides* 'Aurea', but not quite as golden as *Robinia pseudoacacia* 'Frisia'.

Our shrub has leaves that are extremely variable in size and shape, even on one branch, so that it is difficult to select a typical leaf. They vary from being simply ovate to distinctly lobed, with one to several lobes. The leaves tend to become larger and more lobed toward the tips of the branches. Smaller leaves are about four inches wide and a bit longer, and the leaves toward the ends of branches are often eight inches wide and

as long. They are borne on petioles about an inch long, and have cordate, but often oblique (uneven, like an elm) bases and elongated tips.

The shrub's major fault as a garden plant is that neither the flowers nor the fruits are attractive at a distance, as they are held hidden beneath the leaves unless the branches are lifted. On close inspection, however, both flowers and fruits are striking. The flowers are pendulous and have been likened to small white lilies or fuchsias. Flowering begins around the first of June and continues for just over a month, with a few flowers opening each day. Individual flowers remain open for two days. They are most often produced in groups of threes, but sometimes singly or in groups of fives. The sepals are tiny and the unopened petals form a pure white cylindrical tube, about an inch long. They open early in the morning. Although I have not actually seen flowers open, they must do so quickly. There are eight petals, but they usually curl back in fours, with pairs of petals remaining attached along their length and forming a tight coil, leaving an unopened tube at the base and exposing large, bright yellow anthers. The anthers are about a half-inch long, longer than the white filaments. As the flower fades, the petals often separate partially to reveal that there are indeed eight petals. At first the anthers remain in a tight tube surrounding the single pistil, but later they spread very slightly. There is little or no scent.

By July, the egg-shaped, quarter-inch-long fruits are fully developed, but remain pale green. In early August, some fruits begin to turn a glistening, bright porcelain blue, not seen in many

fruits except maybe those of *Ampelopsis brevipedunculata* or *Symplocos paniculata*. There is a single seed inside the fleshy fruit. Some fruits remain on the twigs until October or early November, as the leaves become a clear paler yellow in the fall, contrasting wonderfully with the blue fruits. The fruits become more visible as the leaves begin to drop.

Because of its bold foliage and subsequent blue fruits it makes an attractive specimen shrub or small tree for light shade. It is good for a mixed shrub border, with rhododendrons.

A second plant in the UBC collection was grown from seed collected on Naejang Mountain in Korea in 1985, on a United States National Arboretum expedition whose members included Peter Wharton, curator of the UBC Asian Garden, and Y.J. Chang, a Korean host of the expedition.

This plant is now about five feet tall and flowered in 1992 for the first time. It is either self-incompatible or no fruits developed because of its young age. Our larger specimen, flowering alone for several years, consistently produced fruits. J.C. Raulston of the University of North Carolina Arboretum recently showed me a sister seedling from the Korean expedition. That plant is now about four feet tall and very bushy, with many sprouts from the base. It had quite a bit of leaf scorch, confirming that in the heat of the South, *Alangium* definitely needs some overhead shade.

Dan Hinkley of Heronswood Nursery in Kingston, Washington, has young plants (now about three to four feet tall) from seed he received from Sendai Botanical Garden in Japan. This form, although still within the range of variation of variety *macrophyllum*, has more sharply lobed leaves that are darker green with a softer pubescence, and much longer petioles than those on the UBC plants.

Growing *Alangium*

In nature, *Alangium platanifolium* grows in moist humus soils in partial shade. Our plants have grown rapidly under high shade, allowing full sun for about half of the day and dappled shade the rest of the day. There was little or no damage during the winter of 1990-91 when we had near zero degrees F—a record low for Vancouver. It is probably not reliably hardy north of USDA Zone 7, which includes up to the western foot of the Cascade Mountains.

There was very little foliage burn during the hot dry summer of 1992, even though the plants received no irrigation.

Gerald B. Straley



Alangium platanifolium var. *macrophyllum* — variation in leaf size and shape from single plant in UBC Botanical Garden, except lower right from plant in Dan Hinkley's garden.

Most, if not all, of the remaining species in the genus are tender. UBC Botanical Garden also had the evergreen *Alangium chinense*, but lost it in one of the recent cold winters.

Propagating *Alangium*

Alangiums are readily propagated by semi-ripe-wood cuttings taken in mid-summer. Treat cuttings with 0.8% IBA in talc and then place under mist or fog. For the beginning propagator who does not have a propagation set-up, try dipping the cuttings in a rooting hormone. Then stick them in Perlite or vermiculite and cover with a plastic bag.

Cuttings taken later than about late July may be too woody to root. Seeds also might be a source of new plants. However, our tree has produced a lot of apparently viable seed, but I know of none that have germinated.

Alangium is not ever likely to be as popular as viburnum or rhododendrons for our coastal Pacific Northwest landscapes, but for the plant collector and those who like bold foliage, it deserves to become better known.

Dr. Gerald B. Straley is Research Scientist and Curator of Collections, The University of British Columbia Botanical Garden, Vancouver, B.C.

The Northwest Garden Explorer

Touring the VanDusen Botanical Garden

by Jan Kowalczewski Whitner

Location: 5251 Oak Street, Vancouver, British Columbia V6M 4H1; (604) 266-7194.

Open: Daily, June - August, 10-9; September, 10-6; October - March, 10-4; April, 10-6; May, 10-8; closed Christmas Day.

Directions: From Highway 99, turn east to Oak Street just north of Oak Street Bridge; the garden is on the corner of Oak and 37th Avenue.

Labels; brochures; guided tours Sunday at 2:00 (3:00, summer); visitors' center; programs; classes; plant sales; gift shop; restaurant; restrooms; wheelchair-accessible; fee.



The designers of Vancouver's VanDusen Garden faced an interesting challenge when planning its layout. VanDusen is a botanical garden with a mission to educate the public, so its plant collections had to be arranged according to some botanical system. Yet, because the garden places a decided emphasis on horticultural display, those same collections needed to be attractively integrated into a garden setting, a goal that traditional taxonomic grouping—planting separate groves of beeches, magnolias, oaks, and cherries, for instance—seldom achieves.

To solve this problem, the planning staff used the principle of common geographic origin—plac-

ing together, for instance, *hebes, senecios, and clearias from New Zealand. The staff also decided to overlap and integrate plant collections that are botanically unrelated but share similar growing requirements by planting together, for example, cedars (**Cedrus atlantica* and **C. brevifolia*), rockroses (**Cistus*), and sunroses (**Helianthemum*), all of which prefer poor, dry soils. When the rockroses and sunroses are out of bloom, their foliage continues to create pleasing contrasts in color and texture with the foliage of the cedars. Similarly, collections of *hollies and *hydrangeas have been interplanted because the twisting, papery branches of the deciduous hydrangeas

Excerpted with permission from Garden Touring in the Pacific Northwest: A Guide to Gardens and Specialty Nurseries in Oregon, Washington, and British Columbia by Jan Kowalczewski Whitner, published by Alaska Northwest Books. Call (800) 331-3510 to order direct.

show off well against the berried hollies in winter, while the hydrangea blooms brighten up the hollies during summer.

Combined with the site's ponds, lakes, waterfall, and massive rockwork, these ingenious plant groupings result in a remarkably beautiful botanical garden, one that easily does double duty as a pleasure garden.

Significant Features

39 major plant collections or display gardens on 55 acres of grounds

a collection of 11 marble garden sculptures, positioned on site by the artists

History

In 1966, a group of Vancouver citizens advocated turning an abandoned golf course, an unusually attractive site of rolling parkland dotted by stands of *Douglas-fir and *western red cedar, into a public park. Over the next five years, enthusiasm shifted to developing the site into a botanical garden with park-like vistas. In order to ensure that VanDusen's layout would integrate these two landscape styles smoothly, experts from major European botanical gardens and designers of some of Vancouver's finest public parks were consulted during the planning stages.

In 1971, the golf course was jointly purchased by the City of Vancouver, the private Vancouver Foundation, and the British Columbia provincial government. A massive landscaping program began immediately that reconfigured the site into a flowing, naturalistic landscape of hills, waterfalls, lakes, and streams. The garden was opened to the public in 1975 and is now operated and maintained by the Vancouver Board of Parks and Recreation with the assistance of the advisory board of the Vancouver Botanical Gardens Association.

The Garden Plan

VanDusen offers visitors plant collections ranging from *dwarf conifers to *giant redwoods and a group of display areas whose themes run from children's gardens to a formal maze. Some of the major installations include:

■ the Sino-Himalayan Garden, where a 5-acre site with rock mounds, valleys, pools, and a waterfall shelters Himalayan conifers interplanted with *Asian maples, *magnolias, and *rhododendrons. The Himalayan poppy (*Meconopsis betonicifolia*) can be found blooming here in early summer.

■ the Canadian Heritage Garden, which is divided into three geographical regions based on the



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eastern deciduous forest, the western coniferous forest, and the prairie grasslands. In the last of these, a boulder-strewn stream bordered by grasses and wildflowers makes for a particularly enjoyable stroll.

■ the Meditation Garden, a circle of Douglas-firs and *camellias entered through a beautiful Japanese-style temple gate.

■ a magical woods (near the closed MacMillan Bloedel Place on the garden map) bordering a shallow lake dotted by uprooted snags that look like drowned bonsais.

■ the Mediterranean Garden, where pungent herbs and sub-shrubs cascade down rocky slopes capped by several species of true cedars (**Cedrus libani*, **C. atlantica*, and **C. deodara*).

■ collections of bamboo and water lilies spread over a jungle-like complex of ponds crossed by floating bridges.

■ a glass house with displays of Chinese *penjing* [bonsai] and cacti. Nearby is an unusual garden of stone and stone-like (hypertufa) troughs displaying alpines and rock plants from around the world.

Other popular plant collections include *heathers, **Viburnum*, **Magnolia*, *Japanese azaleas, **Camellia*, *hybrid *Rhododendron*, *roses, and **Hydrangea*. Specialty gardens include a formal garden; perennial borders; a southern hemisphere garden (with plants from Australia, New Zealand, and South America); and the Stanley Smith Rock Garden.

Best Times to View

With its wide-ranging collections of plants and display gardens, VanDusen has something to offer every day of the year. (The visitors' pavilion at the entrance features a display of plants currently in bloom or in berry, along with maps and self-guiding brochures to help locate them.) In spring, camellias, magnolias, rhododendrons, azaleas, *cherries, *crab apples, and viburnums flower; summer brings on the rose garden, perennial beds, *water lilies, and hydrangeas. In fall, many of the tree collections, most notably the *Japanese maples, *ginkgos, and *sweet gums, display their foliage at its most colorful. In winter, the conifer and bamboo collections appear at their most dramatic under light coverings of snow while hollies, *witch hazels, and heathers add bright blooms or berries.

Jan Kowalczewski Whitner is the author of two books on gardening.

Book Reviews

Northwest Landscaping. Michael Munro. Edmonds, Washington: Alaska Northwest Books, 1992. ISBN 0-88240-393-1. \$16.95, paper.

Identifying a whole regional style of landscape design and prescribing how to achieve it is a

Puget Sound landscapes is most clearly and attractively expressed.

The construction chapters correctly define how to get the garden installed. There are good written descriptions of “why” and “how.” The few sketches are helpful and more would have helped define the process more clearly.

“Landscape Plant Lists” in the appendix have special purposes in grouping and are without any description for the novice. This is unfortunate



big order. Michael Munro has written a thoughtful Puget Sound-oriented book about garden design style, garden elements, and how to get there. The larger regional reference is not apparent in most of the book. The design reference is really from the milder, more moist western third of Washington State.

Contents follow a professional pattern of approach to the landscape starting with ideas or visions for defining the character of the garden. Many garden books never go beyond this inspirational part of the process. This book continues by telling the reader how to assess the existing garden (yard is used interchangeably), how to make a plan, and how to understand a range of landscape concerns including slope and drainage, site orientation, constraints, and responsibilities.

Seeking professional help in the design and planning process is covered fairly and the writing moves along to design ideas, examples, and finally the “how-to” chapters. It is in the design principles and examples that the sub-regional style of

since many new plants have been introduced into the Puget Sound region in the past decade and are not obviously covered here or elsewhere. The author is clearly aware of the exciting possibilities that continue to define style. He might consider doing an illustrated book on these plants and how to grow them.

Overall, this book is directed to the sophisticated beginning garden maker who will be pleased to find real local elements and materials clearly defined in a narrative style. This should be pleasurable reading for those novices intent on creating a meaningful garden that fits the land.—*Reviewed by William E. Talley*

William E. Talley has been the landscape architect for the University of Washington since 1987. He has been senior principal of landscape architect firms, done site planning and landscape architectural services, and planned or restored various parks and playgrounds from Alaska to Washington. Mr. Talley also has taught and is a former president of the Washington Chapter, American Society of Landscape Architects.



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Trees of Vancouver. Gerald Straley.
Vancouver, British Columbia: UBC Press,
1992. ISBN 0-7748-0406-8. \$19.95, paper.

The city of Vancouver, British Columbia, beckons the Puget Sound plant enthusiast for a weekend or even a single day of superb garden visitation. Boasting four outstanding public gardens with mature specimens of rare and common trees, alike, Seattle visitors often return home wishing they had an opportunity to experience the richness of these gardens in their own city. Stanley Park, Queen Elizabeth Park, VanDusen Botanical Garden, and the University of British Columbia Botanical Garden all have magnificent collections of uncommonly beautiful trees, as well as superb plantings of annuals, perennials, and shrubs. In addition, the tree life of Vancouver's streets is far richer in diversity and more mature than that of Seattle.

This rich resource found within Vancouver's city boundaries is discussed and the locations of many of these fine specimens are noted in the *Trees of Vancouver* by Gerald Straley. Straley, both a first-rate botanist and horticulturist, a rare breed in today's ivory halls, has succeeded in blending perfect proportions to satiate the demanding plant person as well as the novice tree explorer.

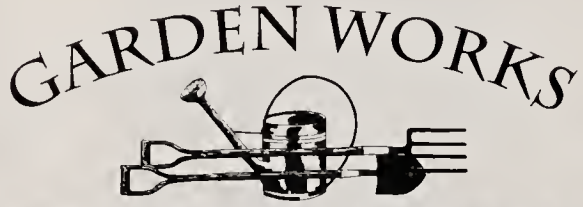
Beautifully illustrated with line drawings by the author's hand, Straley has provided a good method of visual verification for the uninitiated while keeping the price of the book affordable. These line drawings, on the outside edge of the page, allow easy finger jogging to arrive at a familiar looking leaf. Additionally, there are excellently reproduced color plates of selected species in a center inset.

The order of presentation of the species covered is by plant families, rather than by scientific or common name. For the uninitiated, this format may seem a bit abstruse, yet a format of alphabetized Latin or common names would be equally intimidating without some central core of horticultural knowledge. Taxonomic relationships are generally underemphasized in most gardening books and I appreciate its friendly delivery to the user of this guide. As an instructor of plant identification, I have found the identifying characteristics of many of the species included in this work to be helpful in explaining species differences to my students.



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Having used this guide personally, and being familiar with the author's attention to detail, I trust that most of the plant names have been verified within reason. Seattle-area tree enthusiasts who have used Straley's book have found several trees dead or missing since the publication of the book, and a handful of others that are thought to be misidentified. This brings to mind the significance of guides such as these as they serve as a hallmark of a city's health and diversity in plant life at any moment in time. The latter criticism, by two of Seattle's better "tree people," should not be ignored, yet I come to Straley's defense with regard to many of their observations. The general weeping character of *Chamaecyparis lawsoniana* 'Pendula', for example, certainly can be a subjective taxonomic call with cultural conditions greatly altering the phenotype of any specimen.

The maps of two prime tree viewing areas with numbers designating individual specimens is a very useful part of the book. Numerous species are mapped, giving exact locations on the campus of the University of British Columbia as well as The Crescent—two richly planted areas in Vancouver with a wide breadth of tree species. This section allows for easy viewing of any species in question and also allows the beginner to study identifying characteristics of a known specimen before moving on to the more challenging encounters.

As a superb reference book to trees hardy in the Northwest or a personal guide to trees while visiting Vancouver, *The Trees of Vancouver* should sit side by side with Jacobson's *Trees of Seattle* on the book shelves of any person who has ever truly gazed upon a tree and marveled.—Reviewed by Daniel J. Hinkley

Daniel J. Hinkley is a lecturer of horticulture at Edmonds Community College, north of Seattle. He is a member of the editorial board of *The Bulletin*.

See the article on *Alangium*, written and illustrated by Gerald B. Straley, in this issue.

Errata

The correct name of this plant (which appeared on page 5 of 55:3) is *Potentilla fruticosa*.



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New on the Shelves of the Elisabeth C. Miller Library



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by Valerie Easton

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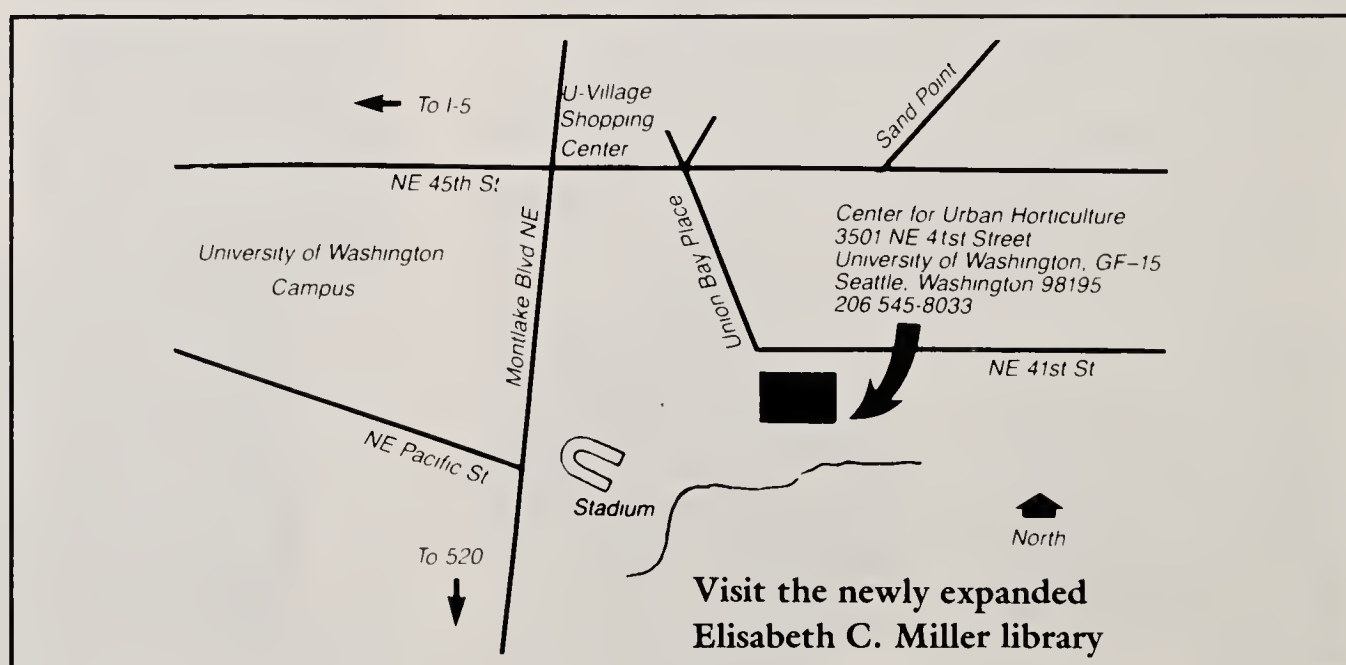
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Yoshikawa, Isao. *The Bamboo Fences of Japan*. Tokyo: Graphic-sha Publishing Co., 1988. ISBN 4-7661-0474-9.

Plant Questions?

Bring your plant identification questions to the Washington Garden Clinic at the Center for Urban Horticulture's Miller Library. Each Monday from 4 p.m. to 8 p.m., year round, you can consult with The Washington State University/King County Master Gardeners about your plant problem, then have library specialists advise you where and how to find the written resources you need.

The Elisabeth C. Miller Library is located at 3501 NE 41st, Seattle, WA. Hours are: Monday, 9 a.m. - 8 p.m.; Tuesday through Friday, 9 a.m. - 5 p.m.



In the Washington Park Arboretum

by Timothy Hohn



Mary Levin, University Photography,
University of Washington



This winter, enjoy the leafless branches and bright berries of *Ilex serrata*, a deciduous holly, in the Washington Park Arboretum. Photo by David McDonald.

Glossary

Cycad is a family of ancient gymnosperms; their large compound leaves make them resemble young palms in appearance.

Elepidote leaves have no scales.

Gymnosperm, literally “naked seed,” are one of the more primitive components of the plant kingdom comprising the conifers, among others.

Taxonomic refers to rank—such as genus and species—in the formal system of scientific classification.

Joining Operation Fairchild

Three members of the Arboretum collections management staff participated in the salvage, reclamation, and clean-up operation in the aftermath of Hurricane Andrew in Florida. The world-renowned Fairchild Tropical Garden in Coral Gables was very badly damaged by the hurricane, losing 70 percent of its valuable collections of tropical and subtropical plants. Several prominent members of the botanical garden community, including the Royal Botanic Gardens, Kew; the Missouri Botanical Garden; the New York Botanical Garden; and the Morris Arboretum of the University of Pennsylvania, joined in the efforts to salvage, preserve, and study the precious collections at Fairchild. Among other groups of tropical plants, Fairchild has one of the largest palm collections in existence.

The three members of the Arboretum staff who

participated were Dean Powell, plant technician; Lou Stubecki, field arborist; and David Zuckerman, gardener lead, who spent the week of October 11-17, 1992, assisting the Fairchild staff with restoration and clean-up operations. Dean spent a good deal of his time working to clean up and restore accessions in the palm and cycad (similar to palm) collections. David and Lou focused mainly on the pruning and salvage of broadleaved trees, particularly large specimens of **Quercus virginiana*—the coast live oak. Each of them possesses skills appropriate to such an important effort and we are quite proud of their contribution. This rescue effort was made possible, in part, by a generous donation from The Arboretum Foundation and Northwest Airlines.

Updating the Arboretum's Catalog

Registrar Tracy Omar has begun editing an updated version of our plant collections catalog. The first edition, published in 1977, was created by Director Emeritus Brian Mulligan and has been a very useful publication. The new edition will be much the same as the original but will contain a contemporary inventory of the Washington Park Arboretum collections. In addition, this new edition will be stored as a word processing file to allow convenient computer changes on a regular basis. Look for the new catalog in 1993.

Collections Consortium

The American Association of Botanical Gardens and Arboreta (AABGA) has initiated a new plant collections networking and preservation program for public gardens. The North American Plant Collections Consortium of the AABGA exists to coordinate and improve the collective living plant collections of North America, and to enhance the conservation and availability of this gene pool for current and future use. We hope that the Washington Park Arboretum will play a participating role in the Consortium.

Toward this end, University of Washington Graduate Fellow Joanna James has begun to review and evaluate select Arboretum collections thought to be worthy candidates for the Consortium. The following taxonomic collections are being considered: *Abies*, *Acer*, *Acer palmatum* cultivars, *Alnus*, *Betula*, *Camellia japonica* cultivars, *Hamamelis* (witch hazel) cultivars, *Ilex* (holly), *Ilex aquifolium* cultivars, *Magnolia*, *Pinus*, *Quercus* (oak), *Rhododendron* (elepidote cultivars), *Sorbus*, and *Viburnum*. These are significant collections in the Arboretum that we think are valu-

able for all of North America. Joanna will help us narrow down our submittal to the Consortium to the best of the above candidates. Participation in this important network will be good—not only for the collective gene pool of North American collections, but for our collections program as well, and a nice feather in the Arboretum's cap. Keep your fingers crossed!

Collections to Visit This Winter

Be sure to see the Joseph A. Witt Winter Garden, located south of the Graham Visitors Center on the west side of Arboretum Drive East.

Specimens from the *Hamamelis* (witch hazel) collection can be seen throughout the Arboretum. Through March, look for their spidery flowers which are yellow and orange through maroon, depending on species. The *Camellia* collection also has specimens throughout the Arboretum grounds. *Ilex* (hollies) are in berry this time of year and do well. In addition to the more familiar evergreen specimens, be sure to look for the leafless branches of the deciduous holly species with their beautiful red berries.

New Accessions

A number of our new accessions were collected responsibly in the wild by arboreta around the world.

217-92 *Pseudowintera colorata* (Winteraceae): A beautiful evergreen shrub with tricolored foliage in green, maroon, and gold. This New Zealand native was collected in the wild and sent to us by the Dunedin Botanical Garden, New Zealand.

290-92 *Cytisus purgans* (Leguminosae): A wild-collected broom from the Pyrenees to help us rebuild and embellish our collection. Received from the Jardin d'Altitude du Baut-Chitelet, France.

291-92 *Eucryphia glutinosa* (Eucryphiaceae): This beautiful summer-blooming shrub from Chile is not new to the Arboretum. The wild-collected germ plasm came from the Plant Science Lab at the University of Reading, United Kingdom.

315-92 *Arctostaphylos columbiana* (Ericaceae): Our native shrubby arctostaphylos is handsome of form, foliage, and bark. Wild collected by Timothy Hohn from the Curme Islands, Desolation Sound, British Columbia.


Timothy Hohn is curator of living collections, University of Washington Center for Urban Horticulture and the Washington Park Arboretum.

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